a reduction in header data by reducing header redundancy across spatial boundaries within one picture whereas Applicant teaches a reduction in header data by reducing header redundancy across temporal boundaries (i.e. between more than one picture).

Applicant will first summarize the prior art relied upon by the examiner in making the rejections. Applicant will then respectfully present disagreements over the Examiner's characterizations of the prior art. Finally, Applicant will discuss teachings of the Applicant's invention which are recited in the claims and which traverse the Examiner's rejections.

Summary of the Prior Art Relied upon by the Examiner

The prior art relied upon by the Examiner teaches well the use of both intraframe encoding and interframe encoding of image data. See Raychaudhuri et al., column 1, lines 34-55. Both types of encoding require header data, which alerts a decoder as to how it should interpret the encoded image data.

Morrison et al. implement an image coder and teaches three types of header data:

(1) a picture header which occurs at the start of a picture;

(2) a group header which precedes a group of blocks; and

(3) a block header which precedes an array of picture elements or pels. Column 4, lines 37-41.

Morrison et al. then explain that "the reason for this arrangement is that it may be possible to reduce the overall quantity of data to be transmitted; for example, a single motion vector or quantization strategy may suffice for the whole picture, or a group

of blocks; where an entire group of blocks does not require picture information to be transmitted, a single header will suffice." Column 4, lines 42-48.

Thus, according to Morrison et al., a block header will not duplicate information that is contained in the group header. Likewise, a group header will not duplicate information that is contained in the picture header.

By way of example, if a plurality of blocks within a group is all encoded using the same quantization, then only the group header will contain the quantization decoding information. The block headers need not include the quantization decoding information because by default a decoder applies the group header decoding information to the blocks within the group. Conversely, if the blocks within a group used different quantization, then each block header will contain quantization-decoding information. This same encoding technique can be applied to a number of encoding variables that are typically included in header data. Thus Morrison et al. avoid much of the duplication associated with the headers of spatially distinct blocks by defaulting to group or picture header data. Likewise, Morrison et al. avoid much of the duplication associated with the headers of spatially distinct groups by defaulting to picture header data.

Importantly, however, all of Morrison et al.'s header compression occurs within a single picture frame. Morrison et al. does not teach that header compression may occur between more than one picture header to eliminate the need for a redundant picture header. In fact, Morrison et al. specifically teach that a picture header will be supplied at the start of each picture. (Morrison et al., column 5, lines 2-4.)

Moreover, Morrison et al. do not teach that header compression may occur between group or block headers of different pictures. Thus Morrison et al. exploit header redundancy across spatial boundaries within a single picture. Morrison et al. do not, however, exploit header redundancies, which may occur across the temporal boundaries of different pictures.

The Examiner's Characterization of the Prior Art

At page three of the subject Office Action, the Examiner stated that Morrison et al. teach a "comparator means for comparing the first control data with a second control data included in the next header data of another picture (Morrison et al.: column 5, lines 10-25)". Applicant respectfully disagrees.

The cited portion of Morrison et al. teaches the comparison of block header information to group header and picture header information. As explained at column 5, lines 28 there are "four possible combinations of coefficient data ... and block overhead data". The only way coefficient data is encoded without corresponding header data is if "the picture or group header contains sufficient information to characterize the block in question".

The Examiner further characterized the Applicant's invention as merely extending the teachings of Morrison et al. to an MPEG environment as taught by Raychaudhuri et al. Applicant respectfully disagrees. Again, Morrison et al. teach that header data may be compressed within a single picture. Morrison et al. make this teaching by recognizing that many blocks within a group, and many groups within a picture will be subject to the same types of encoding techniques. Consequently, Morrison et al. teach that significant encoding reductions may be achieved by not

repeating headers within one picture. In other words, Morrison et al. teach a method to reduce redundancy in block and group headers across spatial boundaries of the same picture.

The Applicant's Invention

The Applicant's invention teaches that the header data may be duplicated not only within a particular picture (as taught by Morrison et al.), but also between more than one picture frames. Thus if the previous picture header contains the encoding data as used by the current header, then the current header need not repeat that header information. This compression method is discussed in more detail starting from page 21 of the Applicant's patent application and with reference to the Figures.

Applicant's invention teaches a method to reduce redundancy in headers across temporal boundaries. In other words, the encoding of a first picture (at a first point in time) may contain certain header information. The encoding of a second picture (at a second point in time) may require header information, which would duplicate that of the first picture. The Applicant's invention teaches a method for reducing such redundancy.

For the reasons stated above, Applicant respectfully submits that Morrison et al. does not teach comparing header information between pictures. Applicant's invention teaches that such encoding can result in significant data reductions. The details for such an encoding method are disclosed in the specification.

Each of the independent claims (i.e. claims 1, 3, 6, 8, 10, and 13) recite these distinctions over the prior art relied upon by the Examiner. In particular,

each of the independent claims recite the use of header data from a first picture to code a second (or succeeding) picture. Each of the dependent claims (i.e. claims 2, 7, 9, and 13) recite further elements or steps.

In view of the above, it is respectfully submitted that the application is in condition for allowance. The Examiner's reconsideration and further examination are respectfully requested.

Respectfully submitted,
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